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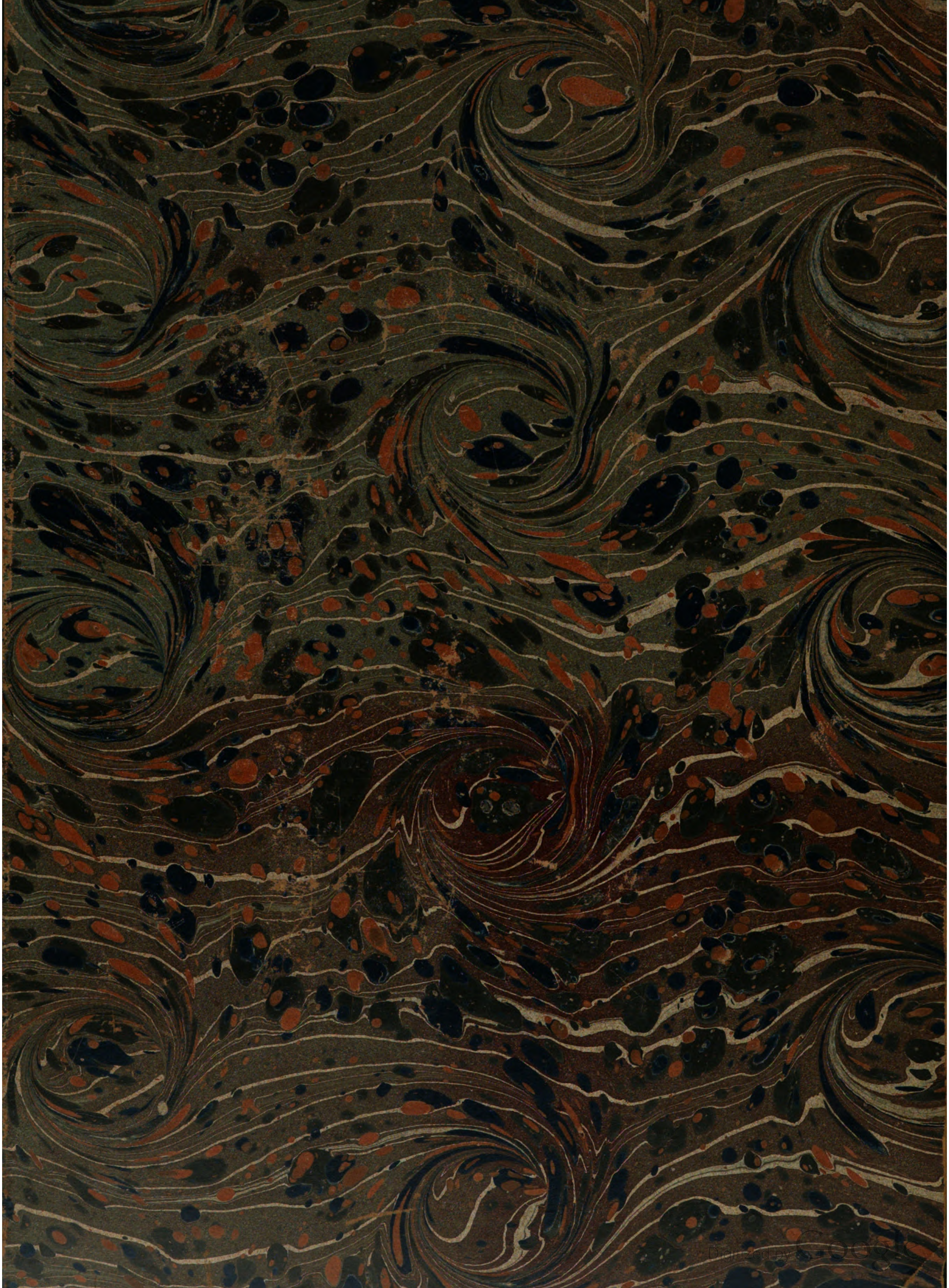

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TOWARDS A KNOWLEDGE OF

THE FLORA OF THE SEYCHELLES.

BY

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[WITH PLATES XXVII., XXVIII., XXIX., XXX.]

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TOWARDS A

KNOWLEDGE OF THE FLORA OF THE SEYCHELLES.

THE Seychelles group of islands is situated between 3° 42′ and 5° 50′ lat. S., and between 55° 15′ and 56° 50′ long. E. The largest island, Mahè, is distant about 800 miles from the east coast of Africa, about 780 miles from the north-east portion of Madagascar, and about 915 miles from the Mauritius.

The principal islands of the group are Mahè, Praslin, Ladigue, and Silhouette; but there are numerous other islands—many of them of great interest. Of these, the more noteworthy are Ile du Nord; Ile Marianne; Ile Félicité; Ile aux Frêgates, and Ile Aride.

Oceanic islands are to the Naturalist, as Dr. Hooker says, what comets and meteorites are to the Astronomer, and, on this very account, the investigation of their living inhabitants has a peculiar fascination. My sojourn on the Seychelles was far too short to enable me to make anything like a complete collection of its Flora. Obliged by circumstances to be there during the winter (the dry) season, and also compelled to leave just as the rainy season was bringing out the trees and plants into flower, I was precluded from doing more than making a collection of the later flowering plants, those met with in July, and the early flowering ones met with in October and November. In publishing an account of the species collected, I can only hope, therefore, to make a small contribution to the Flora of this little-known group.

Unlike the majority of oceanic islands, the Seychelles do not appear to be of volcanic origin. The rock which forms the greater part of most of the islands is granite, many of them are surrounded by coral reefs. In some, as in Mahè, the granite mountains rise to a height of about 3000 feet; in others, as in Ile Dennis, the mountain tops have subsided below the level of the sea, the coral reef has gone on growing as an encircling reef, and the land is kept a little above sea-level by the accumulation of dead coral. On the larger islands, the zone of cultivation extends from the mangrove swamps up to about 800 or 900 feet high on the slopes of the mountains. In this zone will be found all the ordinary fruit trees of the tropics of both hemispheres. The cocoa nut palm is by far the most largely cultivated; but every plantation has around its own compound, bread-fruit and jack-fruit trees, fruit de cythere, avocada pears, chocolate, coffee, mangoes, cloves, cinnamon, custard apples, with fields of rice, manihot, maize, sweet potato, and pine apples; vanilla grows trained up to the pomegranate and orange trees, and there are many other introduced species. Above this zone the more truly indigenous plants are met with. *Stevensonia grandifolium*, *Verschaffeltia splendida*, grow up amid thickets of a species of Angiopteris; and even when the cool tops of the mountains are reached, the same species are to be met with, though of a smaller size, and presenting a less luxuriant appearance, from being tossed about by the winds. The same species of Angrœcum; the same species of Aphlœa (? *A. Madagascariensis*, var. *Sechellensis*), that I found growing on the lower border of the forest, I have found also on the summit of the highest mountains. On the sides of the mountains there are forests of *Wormia ferruginea* (Bail.). On the top of the Trois Freres at Mahè, and at Silhouette, I found *Nepenthes wardii*, which I describe below as a new species; and on Ile Aride I discovered a new species of Gardenia, to which I have given the name of *Gardenia annœ*.

The present indigenous Flora of these islands is being fast destroyed, to make way for the introduction of fruits and flowers not indigenous to the soil. On some of the islands all the native forests have been cut down, in order to make way for cocoa nut plantations, fields of rice and manihot, and in some of the larger islands this destruction is going on gradually but surely.

Still, in the forests of Mahè, Ladigue, and Praslin, and on the wooded heights of Silhouette, many portions of the forest remain in an as yet untouched condition; and it is to be hoped that a complete collection of the species to be met with in these places will be made, ere they disappear as those on the low grounds have done before the more useful cocoa nut palm, and as those on the high ground have done before the axes of the charcoal burners.

As was to be expected, the Flora of these islands forms no exception to the general rules referred to by Dr. Hooker in his lecture on Insular Floras. Indigenous annual plants are extremely rare, if not altogether absent; but recently introduced ones have as yet made no very material progress. The islands contain both peculiar genera and species; it would be, however, premature to discuss to which of the two continents, Asia or Africa, we should look for the mother country of their Flora.

When I have worked out all the species which I have collected, I hope to be better able to throw some light on this subject. At present, my chief object is to describe three species of plants which are among the more interesting of the novelties that I met with.

The following is an account of these species :—

Order, DILLENIACEÆ. Tribus II., *Dilleniaceæ* (Bentham and Hooker, "Genera Plantarum," p. 11);

Wormia ferruginea (Baillon), "Adansonia," Tome VI., p. 268, foot note; and "Adansonia," Tome VII., p. 348.

PLATE XXVII.

Arbor, ligno molli; ramulis petiolis et laminis, brevibus pilis, colore ferrugineo, dense vestitis. Folia simplicia, obternata, oblonge elliptica, longa 42 cent. 16 cent. lata, basi rotundata, marginibus integris, adulta, parte superiore glabra, immatura, pubescentia, parte inferiore pilis densis colore ferrugineo co-operta, costis infra distinctis, nervis primariis ad 58, oblique parallelis, valde conspicuis, petiolis crassis (8–11 cent. longis) cum alis duabus lateralibus, stipulæformibus, membranaceis, pilosis, stipitem amplectentibus, aliquando decedentibus, cicatrices duas vasiculares persistentes relinquentibus.

Flores racemis dense pilosis, calicibus valde imbricatis; sepalis 5, tribus primis (aliquando quarto) dense pilosis, quarto et quinto sæpissime glabris. Corolla 5 petiolata, petalis ter longioribus quam sepala, membranaceis, albo colore; staminibus brevioribus quam gynœcium, staminibus externis brevioribus quam interna, sæpe sterilibus. Ovarium 7–10 carpellis sæpissime 8, cujusque carpellæ pariete laterali, per duas ex tribus partibus, distinctâ a parietibus duarum proximarum carpellarum, carpellæ interioribus marginibus nonunitæ liberæ. Stigmata æquo numero quam carpellæ.

Crescit in Insula Sechellarum. Nomen Creoll. *Bois marre blanc.* Floret Sept. et Oct.

Tree with soft wood; the smaller branches, the petioles, and lamina of the leaves, densely clothed with short rusty-coloured hairs; leaves simple, alternate oblongly elliptical, with the basal portions rounded off; margins entire; when fully grown, nearly glabrous above, but in the young leaf, strongly pubescent; below, they are completely covered with a dense mass of ferrugineous hairs; costa on the under surface very prominent; nervures very numerous, oblique, parallel, strongly marked; nervules reticulated, inconspicuous; petioles thick, with two lateral wings, stipule-like, sometimes deciduous, sometimes persistent, and clasping the stem; when deciduous, leaving two persistent basal cicatrices.

Inflorescence—A raceme, terminal, with nearly opposite flowers. *Calyx*—Strongly imbricated; sepals 5; the three first, and sometimes the fourth densely clothed with hairs; the fourth, generally, and the fifth always glabrous. *Corolla*—5 petals, each twice as large as the sepals; membranous, of a white colour. *Stamens*—Shorter than the carpels; the outside stamens shorter than the inner ones, and oftentimes sterile; carpels 7 to 10, more generally 8; each carpel distinct, but united to the common set by its ventral suture; free stigmatic portions same in number as the carpels.

This handsome tree is very common on the sides of the mountains on Mahè, Praslin, and other of the islands; it grows to a height of from 30 to 40 feet; the wood is white and soft, but useful for inside work. I found it in flower in September and October; but it is very rare to meet with such a raceme as is figured on Plate XXVII., as many of the flowers fall off apparently before opening; in others, the petals appeared but feebly developed, being scarcely larger than the sepals; only one or two flowers on a raceme ripen their fruit. The flowers are less numerous on the old trees; but on young trees of from 12 to 14 feet in height many fully expanded flowers will be met with. I have found on very young freely-growing trees the lateral wings of the petioles very largely developed, and embracing the stem; in some cases I have found the space between these and the stem filled before sunrise with water—in some cases to the amount of about half an ounce. I strongly suspect that these appendages are but modified stipules. Professor Baillon has written a memoir (*l. c.*) on the organization of the flower of this species, for a knowledge of which I am indebted to the information of Professor Oliver of Kew. I regret that I did not know of this paper when in Mahè; it was published in Paris during my residence in the Seychelles. If I am able to add any information to that already given by Professor Baillon, it is owing to the fact of my having observed the flower in a recent state. The petals, instead of being 'tout à fait pareils comme forme et comme taille à ces deux sépales intérieurs' (i.e. the fourth and fifth glabrous sepals), are often twice their length, of a white colour, and form rather a handsome flower. They wither very much in drying, and are frequently more conspicuous than they are represented in Plate XXVII., which is drawn from dried specimens. I am able to confirm Professor Baillon's very interesting observations about the structure and composition of the gynecium:—

Order, RUBIACEÆ. Tribe, II., *Cinchoneæ*. Family, Gardenidæ,
Gardenia annæ, sp. nov.

PLATE XXVIII.

Arbuscula, foliis 8 cent. longis, 2 cent. latis, breviter petiolatis, angustis, lanceolatis, glaberrimis.

Flores axillarii, solitarii, sessiles; Calyx exterius glaberrima leniter 5 dentata; sepala, parte superiore dense pubescentia. Tuba corollæ campanulata, glabra, valde 9 limbata, integra, ovata, acuta, patula; Stamina partim exserta. Ovarium oblongum; stigma valde bifidum.

A low tree or shrub, from three to seven feet high, stem low, and branching from the ground; leaves glabrous, narrow, lanceolate; petioles short; flowers axillary, solitary, subsessile, sweet-scented. *Calyx*—Glabrous externally, five sepals, ending in long sharp teeth; inner surface of calyx tube densely pubescent. *Corolla*—Campanulate, glabrous, deeply five limbed, petal lobes ovate, of a white colour, sprinkled with brownish black. *Stamens* partly exserted; stigma deeply bifid; fruit, large, inferior, indehiscent, two-celled, filled with a soft pulp.

This species, which I believe to be undescribed, grows in some quantities on Ile Aride. This is one of the smallest islands of the group, and is situated to the north-east of Praslin. The island is little more than a collection of large granite rocks. On the side opposite Praslin there is a level portion of very rich ground, which is cultivated, but otherwise the island is altogether in possession of countless myriads of birds, and has a desolate and arid look. The Gardenia grows in hollow places between granite boulders. It was in full flower in the month of October, but the fruit in all stages hung at the same time from the branches. I once found two or three small plants of this species on the eastern side of Ile Felicitè, and a few plants of it are in cultivation at Mahè; otherwise, I believe it is confined to the one small island. It appears to be sufficiently distinct from any previously recorded Asiatic or African species :—

Order, NEPENTHACEÆ,
Nepenthes Wardii ; sp. nov.

PLATES XXIX. AND XXX.

Ascidia cyathoformia, ore largo, basi constricta, mediam partem versus subinflata. Operculum orbiculatum, interiore parte parce glandulosum, basi a tergo ter-cornutâ. Folia coriacea, oblonga, obovata, longa; petiolis lineare oblongis. Flores masculi, racemosi, sublongi; pedunculis compositis, radiantibus; pedunculis circumcirca, periantho exteriore parte tantum, aureo-rubro tomento vestitis; fœminei adhuc ignoti.

Ascidiá cup-shaped, narrowing nearly to a point below, then towards the upper two-thirds bulging outwards, and afterwards slightly constricted at the edge ; mouth large; operculum articulate ; glands sparsely spread over the inner surface. The mid rib on those leaves, which develop a pitcher, is continued as far as the base of the operculum, and there gives rise to three filaments, of which the middle one is the longest, and those at either side are nearly equal. These appendages are very conspicuous in the young unopened pitcher. In leaves not bearing a pitcher, the mid rib is coiled into a tendril, by means of which the leaves anchor themselves to the branches of the trees amid which they grow. These latter leaves are generally developed from the flowering axis. The leaves are leathery, broadly ovate; the wings are glandular.

The pitchers, when young and sheltered from the weather, are covered over with a fine golden red pubescence, which gives them a handsome appearance when contrasted with the dark green coriaceous wings of the petioles.

Inflorescence—Male raceme rather long, with compound peduncles, on the inner edge of which the flowers are carried; the rachis, peduncles, and the outer surface of the perianth, covered over with the same golden red pubescence met with on the ascidia.

Female flower unknown.

This well-marked species is, I believe, the first described from any country other than Asia or its islands, and it is therefore a matter of interest to find it in a group of islands, geographically belonging to the African Continent. It is, as far as my researches enable me to determine, only found on Mahè and Silhouette, and on both islands only on the exposed summit of some of the loftiest peaks of the mountains of these islands. I have gathered numerous specimens from the lowest of the three pinnacles of the Trois Freres, at Mahè (about 2500 feet high). It here grows in one vast colony, overtopping all the neighbouring plants, and completely smothering many of them. It was in full flower in August and September; but the whole colony appeared to consist of male plants. A specimen from this locality is figured on Plate XXIX. The pitchers were small, but some were met with here half again as large as those figured. In Silhouette, the pitchers, of what I take to be but a variety of this species, attain to the size figured on Plate XXX., and the plants are much more luxuriant. The two mountain tops, containing these two forms, are about 14 miles as the crow flies from each other, ten miles of which is across the sea.

I name this species after my friend Swinburne Ward, Esq., H. B. M., Civil Commissioner for these islands. To his kindness I am indebted for a great deal of my knowledge of the Flora of the Seychelles, and to his introduction to me of an aged "bonne homme," one of the emancipated slaves of 1834, I owe a knowledge of the *habitat* of this species on Mahè. Often and many times had I looked for it on and over many of the mountains; at last, guided by this old man, who, by the help of my blacks, cut a passage through the forest which clothed the steep slope of the mountain, I was led to the brow of the hill, where he pointed out the luxuriant mass of the "pot a l éau."

In another communication I hope to give a further account of the Flora of this group.

EXPLANATION OF PLATES.

PLATE XXVII.—*Wormia ferruginea.*

Fig. 1. Leaves from a young branch, natural size.
2. Inflorescence, natural size.
3 & 3*a*. Pistil and Section, with 10 carpels; when the fruit ripens, the division between the carpels becomes very apparent.
4 & 4*a*. Do. 8 carpels.

PLATE XXVIII.—*Gardenia Annæ.*

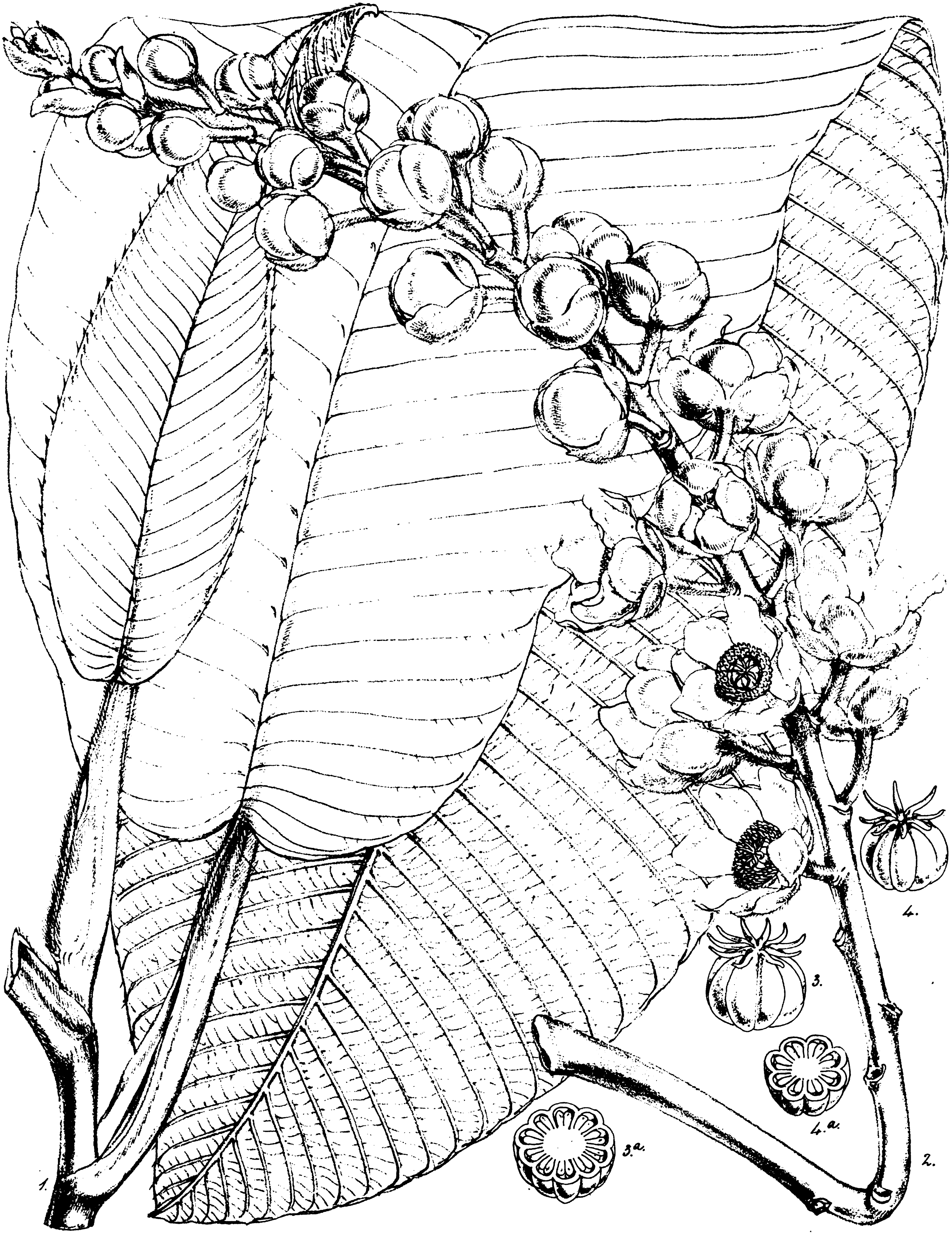
Fig. 1. Flowering branch, natural size.
2. Corolla laid open, showing stamens.
3. Calyx laid open, showing interior of sepals and style.
4. Fruit.

PLATE XXIX.—*Nepenthes Wardii.*

Fig. 1. Flowering branch, natural size, from Mahè.
2. Inflorescence.
3. Male Flower, magnified.
4. Do. fully expanded, showing stamens.

PLATE XXX.—*Nepenthes Wardii.*

Fig. 1 & 2. Ascidia, from Silhouette.
3. Glands of operculum.
4. Section of Annulus.



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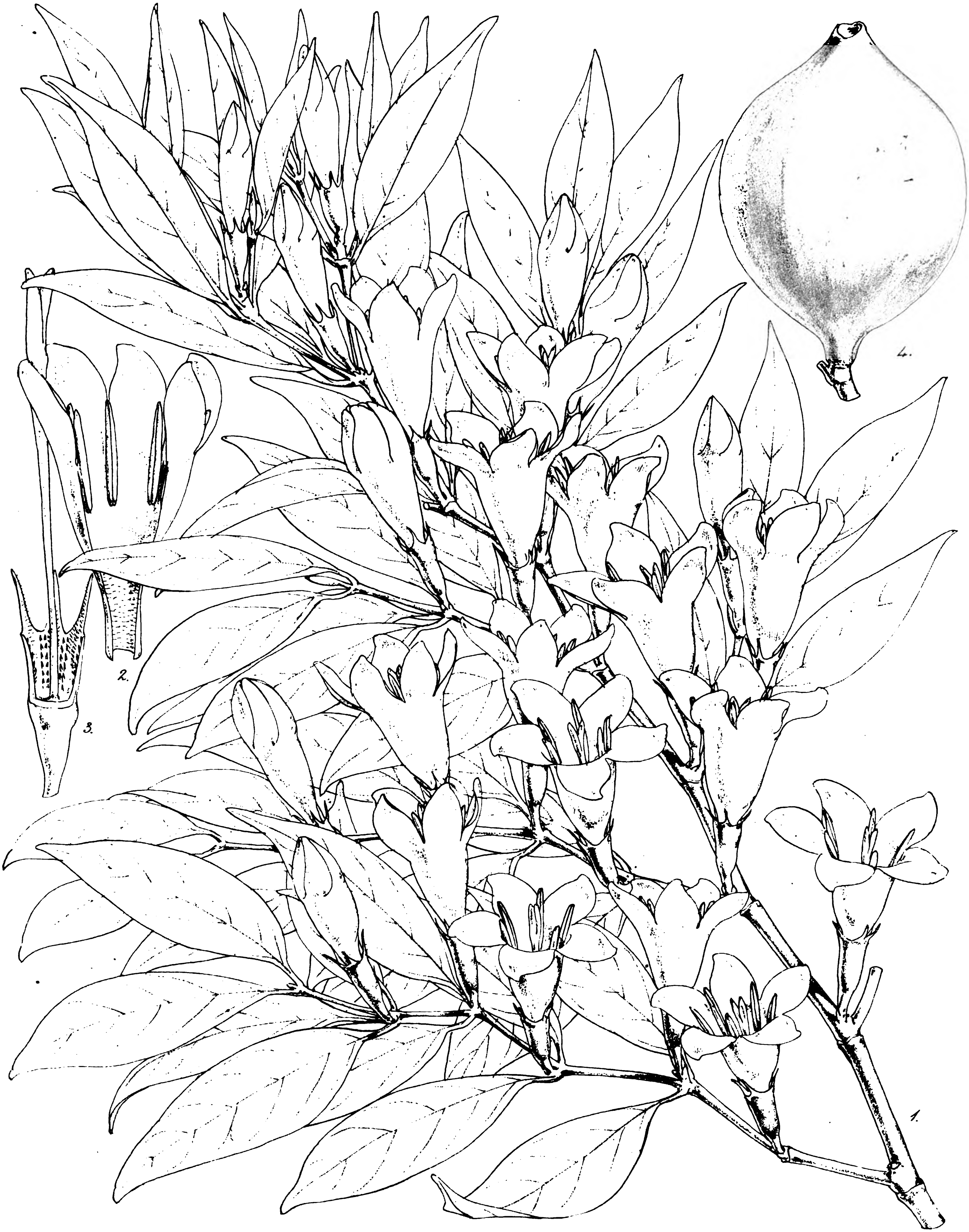
Wormia ferruginea, *Bail.*



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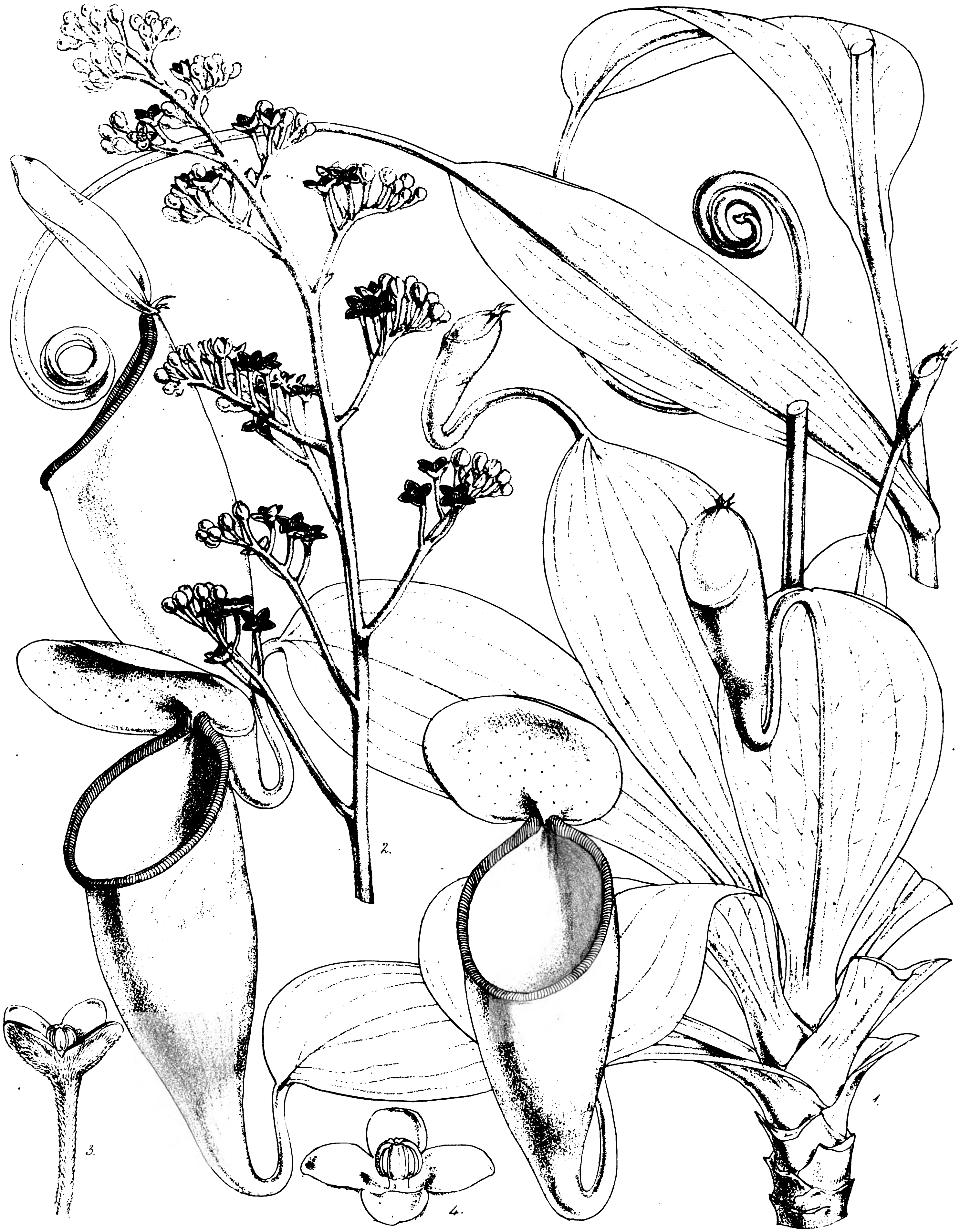

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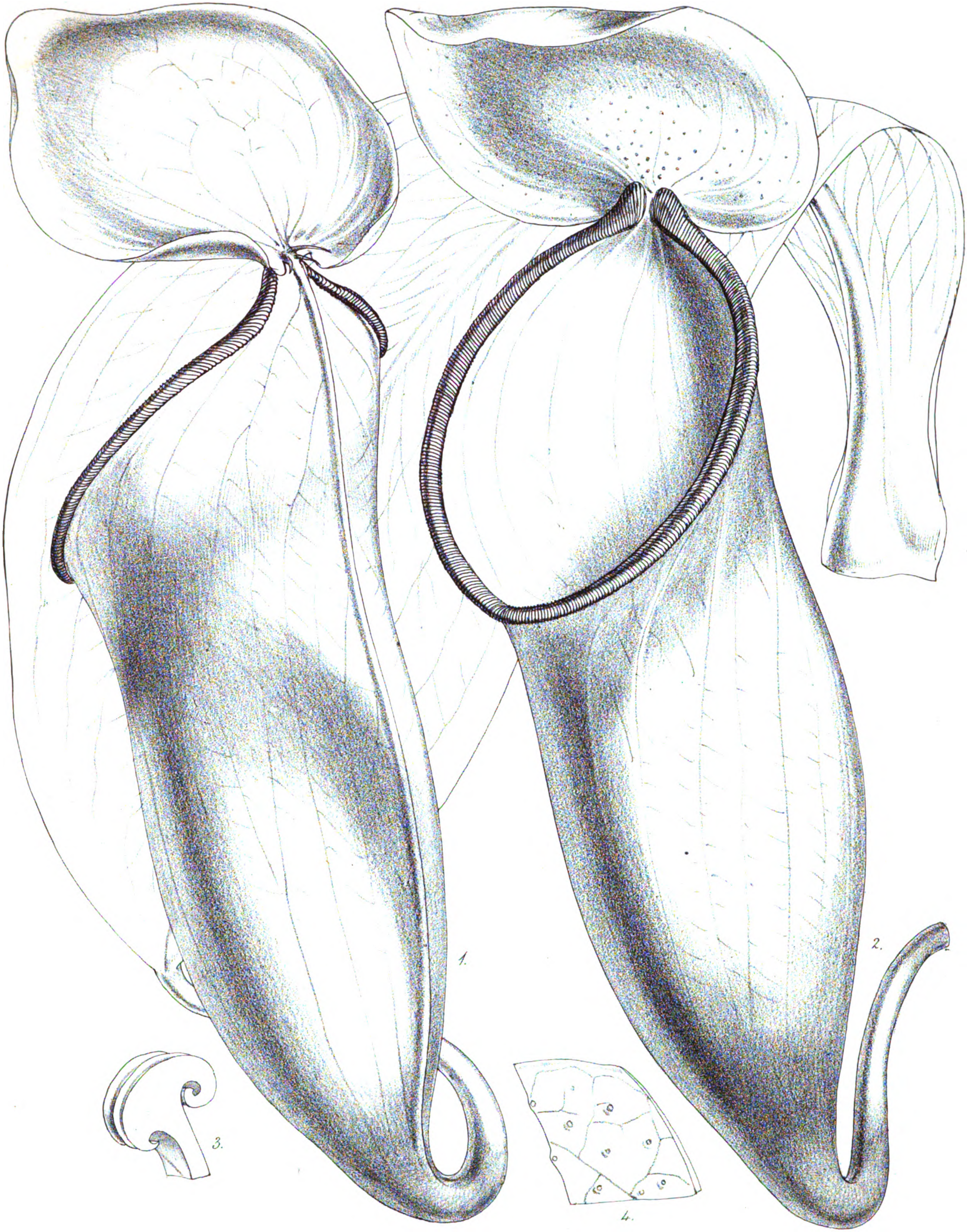
Nepenthes Wardii, *sp. nov.* ♂



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